

Energy security in the industrialized world

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The quest for energy security is a major concern of industrialized countries which are mass consumers of primary energy. The various forms of fossil fuels – crude oil, natural gas, coal and uranium – are, like many commodities, exposed to the law of supply and demand in national and international trade. Demand for fuels, especially oil, has been growing fast since the 1960s. Supply, as for all commodities, is distributed according to geology, irrespective of political boundaries. Supply is abundant, especially for coal. The proved reserve/production ratio is in the order of 30 years for oil and 50 years for gas given the present state of exploration.

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¹Henry Kissinger, interview in *Business Week*, 23 December 1974, reproduced in Department of State Bulletin, 27 January 1975, p 106.

²BP *Statistical Review of World Energy*, BP, London, June 1985.

³GATT press communiqué, No 1382, 21 March 1986.

⁴'Effects of changes in energy prices', *OECD Economic Outlook*, No 33, July 1983, p 75.

⁵BP, *op cit*, Ref 2.

The control of energy sources, proved and potential, is an instrument of power – economic, political and even military. Thus, the functioning of the energy markets is intertwined with the power balance. Henry Kissinger put it bluntly in January 1975: 'You could never implement the energy policy as a purely economic matter. It has been a foreign policy matter since the beginning'.¹

Oil dethroned coal in the 1950s. In spite of sky-rocketing prices, it did not abdicate to other energy sources in the 1970s. In 1984, it accounted for 40.2% of primary energy consumption in the USA, 47.3% in Western Europe and 59.2% in Japan. World trade in crude oil and oil products accounted for 43.2% of world oil consumption in 1984² and for 15% of world trade in 1985.³

As a consequence, oil is the dominant energy source and the price of oil is a price leader for the other primary energy sources. The disposal of oil as a resource is a comparative advantage and the lack of such a resource a handicap for any country today.

The purpose of this viewpoint is to summarize the vagaries of the oil market since the 1960s, to outline the actions of the major industrial countries in their quest for energy security, to assess the reasons for the fall in oil prices and the prospects for the supply and demand for oil up to 2000 and to evaluate the economic security risks

and the geopolitical risks related to oil.

Vagaries of the oil market

The market for oil is worldwide, extending from developed to developing countries, including Comecon countries. It has been, almost from the start, an oligopolistic market under the influence of the major American and British oil companies from the well to the pump. These companies share the rent (the difference between the development cost and the price to the end users) with the oil-producing and oil-consuming states. In 1960 OPEC was set up to dismantle the concession system and to nationalize the upstream activities of the companies. From 1971, OPEC was able to act as a cartel and to capture a larger share of the rent. The Arab-Israeli War in 1973 and the revolution in Iran in 1979 gave producers the opportunity to impose drastic increases on oil prices. Both increases induced a wage price spiral in OECD countries and a considerable transfer of real income to OPEC, which in turn, reduced world demand.⁴

Expressed in current dollars, the price of Arabian Light rose from \$2.80 in October 1973 to a peak of \$34 in October 1981. It levelled off at \$29 in April 1983. Expressed in constant dollars, the price was multiplied by five between 1973 and 1981.⁵ A down-

ward trend appeared in 1983 and was masked by unofficial discounts. It accelerated from November 1985 to an average cost of around \$15 in OECD countries in April 1986. OPEC was no longer able to master production and prices and the oil rent was shifting downward. The main reasons for the reversal in oil prices were the recession of the early 1980s, the rise of the dollar *vis à vis* other currencies and the response of industrialized countries to the two oil shocks.

Global response of the industrialized countries

On a US initiative, the International Energy Agency (IEA) was set up in 1974. The IEA is not a cartel but an instrument of cooperation providing statistics and forecasts, as well as a mechanism for the prevention of crises through stockbuilding and emergency sharing. The non-participation of France has weakened the possibility for the EEC as a group to influence the Agency.

The governments of OECD countries pursued a dual policy tending to reduce the share of oil in the energy mix and to reduce the share of oil imports from OPEC.

In the 1973–84 period, economic growth in the OECD countries averaged 2.6% a year, but primary energy demand remained at the same level. The IEA registered a 28% reduction in oil use per unit of GDP and a 19% decline in total energy use per unit of GDP. These developments resulted from energy savings and energy substitution through increases in production and/or imports of coal and natural gas and the extension of nuclear energy.⁶ The share of oil in total primary energy requirements of the IEA countries fell from 52% in 1973 to 43% in 1984.⁷ In the meantime, the industrialized countries developed new oilfields in 'safe' zones, either domestic (Alaska and the North Sea) or external (such as Mexico which is not an OPEC member).

These policies had important consequences for OPEC's activities. OPEC's production suffered a reduction of 41.5% between 1974 and 1984; its share in the production of the

non-communist world fell from 65.8% in 1974 to 43.2% in 1984. In the field of trade, exports from the Middle East were reduced by a half during this period.⁸

These far from negligible results, did not derive from collective action. Each industrialized country retained national control over energy policy.

National responses of industrialized countries

The USA accounts for a third of world primary energy consumption and a quarter of world primary energy production. It has large reserves of coal but the reserve/production ratios of oil and gas are very low and dwindling (8.9 and 11.5 respectively in 1984). No new nuclear reactor has been ordered since 1978. The USA is the main net oil importer in the OECD, importing up to 225 million tons in 1984, 30.9% of its oil consumption. More than half of these imports are shipped from Canada and from Latin America, including non-OPEC Mexico; the contribution from the Middle East is only around 13%.⁹ This figure does not reflect the importance of the Middle East for the USA. The rich Gulf states have accumulated the bulk of OPEC's surplus receipts and invested them in American securities. The Middle East is an important supplier to both Japan and Western Europe, the USA's key partners in world politics.

Japan is the second oil consumer within OECD after the USA. Its domestic resources of fossil fuels are negligible. The ratio of primary energy self sufficiency stood at 17% in 1984. Thanks to a strict conservation policy, oil imports were much lower in 1984 than in 1973, in spite of an annual GDP growth rate of 3.8%. Oil accounted in 1984 for 60.2% of total primary energy requirements. Two-thirds of crude oil imports travel through the Straits of Hormuz. Indonesia and Malaysia supply the rest. Both South-east Asian countries and Alaska ship liquefied natural gas to Japan. Japan is depending on nuclear energy and has become the third largest producer in the OECD after the USA and France.¹⁰ In view of its huge and lasting dependence on oil

⁶Remarks by Mrs Helga Steeg at 5th European Petroleum and Gas Conference, Amsterdam, 21–23 April 1986, p 11.

⁷International Energy Agency, *Energy Policies and Programmes of IEA Countries: 1985 Review*, Paris, 1986, Figure 1.

⁸BP, *op cit*, Ref 2.

⁹Ibid.

¹⁰IEA, *op cit*, Ref 7.

from the Middle East, Japan's energy policy is bound to follow the US example in this area.

FR Germany is the third-ranking OECD oil consumer and the third largest oil importer after the USA and Japan. It is the second biggest user and producer of coal. Domestic lignite is competitive, hard coal is not in terms of imports and has to be subsidized in the form of a levy on electricity tariffs. Energy self sufficiency stood at 49% in 1983 thanks mainly to coal.¹¹ The North Sea is its largest source of crude oil before Libya and the Gulf. Natural gas is imported from the Netherlands, Norway and the USSR. Progress has been made in the development of nuclear energy in spite of delays resulting from opposition by ecologists. West German energy policy relies primarily on market forces and price mechanisms in order to adapt production and demand to its specific objectives, ie to reduce dependence on oil and to protect the environment from emissions by cars and power plants.

Fourth largest

France is the fourth largest oil consumer in the OECD and the fourth largest oil importer. Its rate of energy self sufficiency was 22.5% in 1973 and 42.6% in 1984. This achievement was due in part to progress in energy efficiency: primary energy consumption was at the same level in 1984 as in 1974.¹² This was due mainly to the implementation (at the cost of substantial external borrowing) of an ambitious nuclear programme. France ranks second after the USA in the production of nuclear-generated electricity. Expensive coal production has been reduced. Net oil imports were cut by 40% between 1973 and 1983, the main suppliers being presently the North Sea, the Gulf and West Africa. Natural gas is imported from the Netherlands, Norway, the USSR and Algeria. Due to the depreciation of the franc and the appreciation of the dollar, energy imports amounted to a quarter of total imports in 1984. The French policy relies primarily on state ownership of, or government involvement in the energy companies, which

are closely supervised. In the field of uranium enrichment, France has launched cooperative ventures with several European partners.

The UK is well endowed with all fossil fuels. Its rate of self sufficiency increased from 49% in 1973 to 106% in 1984. Oil production started in 1976 and will probably peak in 1985–86. No oil exports are expected by 2000. Oil production presently accounts for 5 to 6% of GDP.¹³ The North Sea provides the bulk of natural gas needs. A number of coal mines are not competitive with imported coal. The UK was an early starter in nuclear energy, but policy was indecisive. It ranks third in Western Europe after France and FR Germany. Oil and gas policy moved from state ownership in gas and from ownership or participation in oil to sweeping deregulation with an aim of introducing market discipline. Even taking into account a probable decline in North Sea production, the UK will remain virtually self sufficient in 2000. It does not have any energy security problem in the medium term.

The Netherlands' main resource is natural gas which contributes over half of the country's total primary energy requirements and brought it close to energy self sufficiency in 1973 (92%) and slightly above it in 1984 (105%). The essence of Dutch policy is to export large amounts of gas and to import crude oil. The Dutch refineries supply products for the domestic and external market (notably FR Germany). The Dutch intend to reduce their gas exports in the future so as to maintain a security stock in the ground.

Norway's gas reserves equal the sum of the reserves in the UK and in the Netherlands. Due to a long-term depletion policy, the reserve/production ratio is close to one century for gas and to one-third of a century for oil. Gas production started in 1978, three years after oil production. The oil and gas sectors account for 15% of GDP. The bulk of the production of oil and gas is exported to the continent through FR Germany. Norwegian and Soviet gas are competing for the future supply of Western Europe. The chances of Norway remaining on the European gas market

¹¹ *Ibid.*

¹² Ministère du Redéploiement Industriel et du Commerce Extérieur, *Les Chiffres Clés de l'Énergie*, Dunod, Paris, 1986.

¹³ IEA, *op cit*, Ref 7.

in the 1990s are dependent upon the financing and development of Troll, its most important gas field.¹⁴

The downfall in oil prices

There are several specific reasons for the sharp downfall in oil prices in 1986. The first is the fulfilment of the objectives of the industrialized countries tending to stay away from oil, especially OPEC oil. As a consequence, aggregate OPEC oil revenues dropped by 52% between 1980 and 1985.¹⁵ The second reason is that several OPEC members incurred external debt and therefore failed to respect the production quotas which were intended to provide for an equitable sharing of revenue. The strategy of the cartel was no longer working. For some time, Saudi Arabia played a corrective role, reducing its own production below its quota. But this move did not compensate for price discounts granted by some OPEC members to the consumer countries. The third reason is the existence of a surplus production capacity which was in the order of 8 to 10 million bbl/day over the last five years.¹⁶ In the summer of 1985, Saudi Arabia reversed its policy of 'swing' producer and decided to produce above its quota and to practise net-back contracts. The Saudi move precipitated a price slump, shifting rent from producer to the consumer countries.

The fall in oil prices is, of course, affecting the supply and demand prospects up to 2000.

Supply and demand prospects to 2000

Prior to the downfall in prices, the IEA was forecasting a decline in oil production up to 2000, substantial for the UK, less significant for the USA. The 1986 fall will have an acceleration effect: the producers whose production costs are around \$15 to \$20 per barrel are threatened by crude oil prices below \$20.¹⁷

OPEC countries with fast-growing populations will be constrained to reduce or even to stop their exports. Nigeria and Indonesia belong to the first group, Algeria and Venezuela to

the second. As a consequence, Gulf countries will account for some 80 to 90% of OPEC capacity, Saudi Arabia commanding close to a half.¹⁸

As production in non-OPEC countries will be lower by the end of the century than today, the demand for OPEC oil will be higher.¹⁹ Free-falling prices will entail a relaxation in the policies of energy saving and energy substitution followed over the last decade by OECD countries. It is to be expected that the uncontrolled increase in energy demand will mostly effect oil.²⁰ Last, the closing of wells in the USA will stimulate imports, notably from the Gulf, as supply from Latin America, including overpopulated non-OPEC Mexico, will be dwindling.

The Chernobyl nuclear disaster will inevitably affect energy supplies in the industrialized countries over the next decade. The closure of some nuclear plants in the USSR will increase domestic demand for oil and gas at the expense of exports to Western Europe. Also, some West European countries are dropping plans to build nuclear power plants; this will mean greater dependence on fossil fuels for electricity generation.

Given the caution necessary in forecasting, the global picture by 2000 seems to be one of reduced supply and increased demand in the industrialized countries and of concentration of OPEC supplies in the Gulf area. 'The central consideration must be that some time – perhaps in the mid-1990s, perhaps later – the oil market will tighten again'.²¹

Economic security risks

Security risks should be considered both from an economic and geopolitical angle.

The sharp fall in oil prices favourably affects the industrialized countries burdened with heavy oil import bills. The trade balance of Japan, FR Germany and France is bound to benefit from low prices. The yen and the Deutschmark will further appreciate *vis à vis* the dollar. In the USA, the oil-producing states and the oil industry generally will face a depression but other regions and other sectors

¹⁴*Ibid*; 'Natural gas in the community: problems and potential', *Energy in Europe*, No 1, April 1985, Commission of the European Communities.

¹⁵'The impact of \$15 a barrel oil', *Petroleum Economist*, Vol LIII, No 4, April 1986, p 115.

¹⁶Helga Steeg, *op cit*, Ref 6, p 2.

¹⁷'Les nouveaux visages de la contrainte énergétique', *Ramsès 1985-86*, Paris, 1986, p 231.

¹⁸Hanns W. Maull, *Raw Materials: Energy and Western Security*, Macmillan, London, 1984, p 114.

¹⁹Chris Hope, 'Free-falling oil prices: who would benefit?', *Energy Policy*, Vol 13, No 1, February 1985, pp 3-4.

²⁰*Op cit*, Ref 17, pp 234, 237.

²¹Helga Steeg, *op cit*, Ref 6, p 5.

of the economy will prosper. The UK's trade balance will inevitably deteriorate. A small country like Norway, largely dependent on oil and gas sales, is bound to suffer. This will be the case for most OPEC countries, especially those which have contracted high external debts.

Low prices will also affect the Soviet economy, which will be earning less hard currency in return for sales of oil and gas to Western Europe. Developing countries with no oil resources, such as Brazil, will get a lift from cheap oil.

Though no safe prediction can be made on the timing of the end of the oil slump, its duration will be limited by the above-mentioned prospects for a shortage of supply in oil-producing OECD countries and an increase in demand in the whole OECD group. These countries should therefore pursue their drive for energy conservation, for greater efficiency in energy use, for restraint in oil consumption and for the pursuit, in spite of the price drawback, of oil exploration.

Geopolitical risks

While the economic impact of sharp fluctuations in price varies according to the energy resources and the level of economic development of each country, the geopolitical risk is concentrated in one specific area – the Gulf, where about 60% of oil reserves are located and which is expected to provide a larger share of oil supplies to OECD countries over the next decade.

Soviet-American rivalry in the Gulf area dates back to the end of the Second World War. 'Three facts govern any consideration of the respective position of the two superpowers: Western vulnerability, Soviet contiguity and regional volatility'.²² In this context, 'the aggregate difficulties facing the United States exceed by a considerable margin those facing the Soviet Union'.²³ The USA disposes only of peripheral naval bases and Congress as recently as in May 1986 rejected a proposal by the US administration for arms sales to Saudi Arabia.²⁴

But the stakes are high. The probability is that the USA will become more dependent on imports from the Gulf. There is no predictable end to the high oil deficits of Western Europe and Japan. An interruption of the oil flow would spell economic and political disaster in the OECD area. Thus security in the Gulf is essential to the US policy of containment. The success of this policy is also dependent upon the prosperity and stability of Saudi Arabia. There is a *de facto* complementarity of interest between the largest producer and the largest consumer of oil.

The West Europeans and the Japanese should be aware of the geopolitical risk to which they are exposed and be prepared to support the USA if requested. The future of Saudi Arabia will determine the fate of the Gulf and the West. The management of oil security is a major task for the Western international system.

²²Sharam Chubin, 'Soviet-American rivalry in the Middle East, the political dimension', in Adeed Dawisha and Karem Dawisha, eds, *The Soviet Union in the Middle East, Policies and Perspectives*, Heineman, London, 1982, p 125.

²³Jonathan Alford, 'Soviet-American rivalry in the Middle East, the military dimension', in Adeed Dawisha and Karem Dawisha, eds, *The Soviet Union in the Middle East, Policies and Perspectives*, Heineman, London, 1982, p 143.

²⁴Sue Baker, 'Congress rejects US arms sale to Saudi Arabia by wide margin', *International Herald Tribune*, 8 May 1986.